Surface Radiation

To conduct the surface gamma-radiation surveys, a vehicle-mounted roadway monitor-1 (VRM-1) gamma-radiation detector system using plastic scintillation detectors (shown in Figure 59) was mounted 0.9 m above the ground on the front of a four-wheel-drive vehicle. The vehicle was driven at approximately 5 km/h across each area. As radiation levels greater than background levels were identified, the vehicle was stopped and the area was surveyed with a gamma-sensitive portable instrument. Any areas exceeding the facility limits were marked with flagged stakes for subsequent covering with additional soil.

Figure 59.VRM-1 and HHD-440 meter radiation detector system.

Radioactive Waste Management Complex

The contact radiation readings of the 1994 spring and fall surveys at the RWMC are shown in Figure 60. All areas surveyed outside of the active pit were below the limit of 1 mR/h at 0.9 m, as specified by the RWMC Project Directives.(19) The 1-mR/h criterion at 0.9 m ensures that personnel are not subjected to significant radiation exposure.

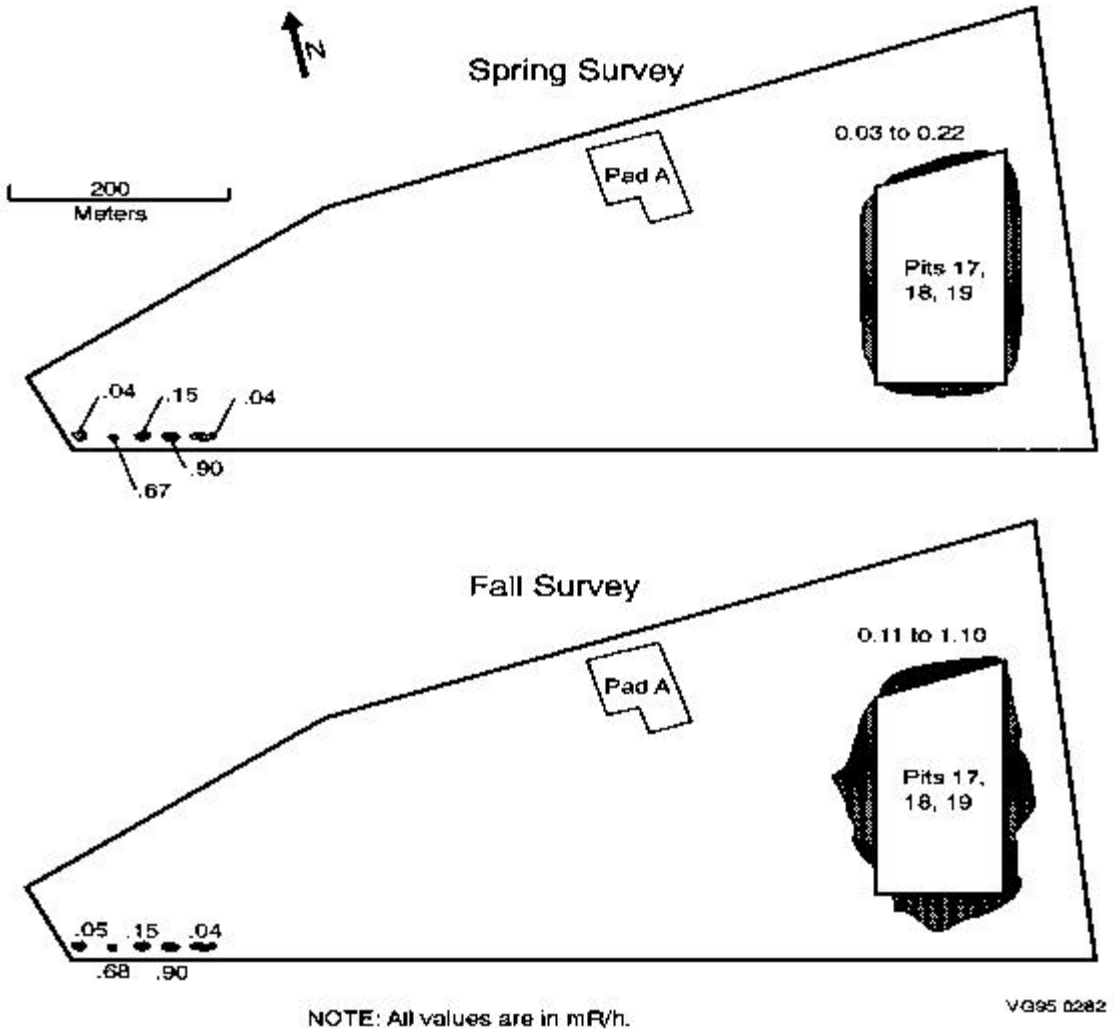

Figure 60. Results of 1994 spring and fall RWMC surface radiation surveys.

Background radiation levels (0.008 mR/h) were exceeded in several locations. The locations of these areas were documented and will be surveyed again in the future. With the exception of the area around the active pit, the highest reading noted in both surveys was 0.90 mR/h at contact and 0.38 mR/h at 0.91 m. This location was found along Soil Vault Row 7.

The elevated radiation levels shown on the sides of the active pit were a result of the waste added during 1994. No new areas were identified during either the spring or fall survey that had not already been identified in earlier surveys.

Stationary Low-Power Reactor No. 1

The SL-1 area location is shown in Figure 1. Results of the spring and fall surface radiation surveys of the SL-1 surplus area identified no areas that exceeded the action level of 20 mR/h gamma at or near contact.

Organic-Moderated Reactor Experiment

The OMRE survey was conducted using a new global positioning radiometric scanner (GPRS). This new system integrates a five-channel global positioning system with the vehicle-mounted plastic scintillation radiation monitor and a single-board 386 compatible computer (see Figure 61).

Figure 61. Global positioning system.

Nine areas exceeding background (0.007 mR/h) were identified during the annual surface radiation survey at OMRE (see Figure 62). None of these areas exceeded the action level of 1 mR/h at contact. All areas with elevated radiation levels were consistent with those found during previous area surveys. Many of these areas were close to or at the ambient background level. The highest reading was 0.74 mR/h at 0.91 m and was the only reading which exceeded twice the background.

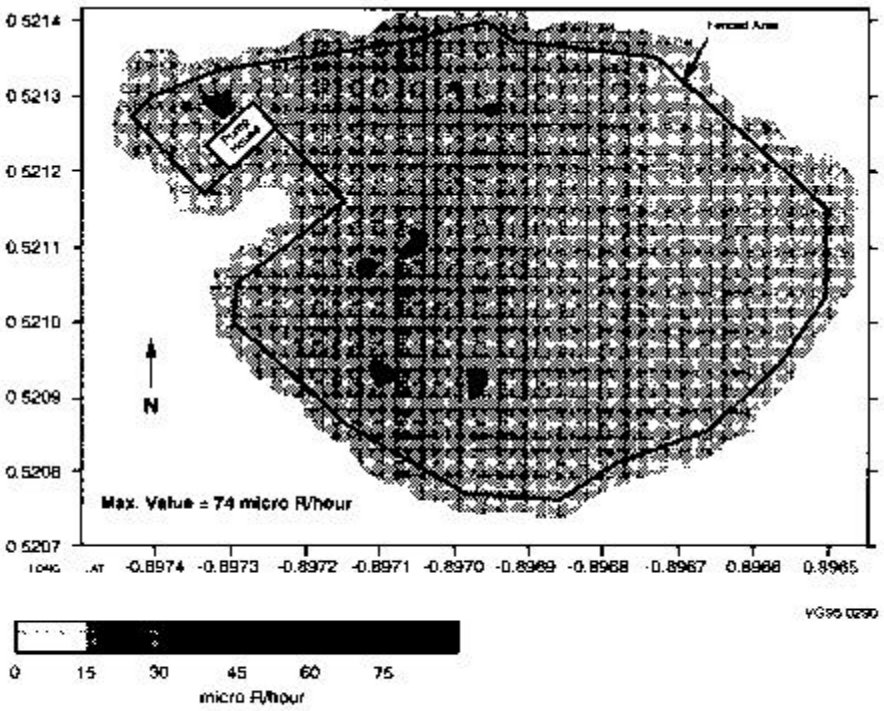

Figure 62. OMRE surface gamma radiation survey area and areas exceeding background levels.

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